

Attorney Docket No.
COE-561

PATENT APPLICATION
Serial No. 10/767,499

REMARKS

Applicants appreciate Examiner's thorough review of the application. Claims 1, 2, 7-13, 21, 25, 30, 32, 33 and 37 have been amended to address Examiner's concerns. Claim 20 has been canceled as redundant after amending Claim 13. No new material has been added.

5 Reconsideration of the application is respectfully requested.

To assist in reviewing Applicants' response: where Applicants have quoted Examiner's office action, the quoted material is single-spaced and indented and Applicants' response to Examiner's concerns is in bold print.

Under "Response to Arguments" of the office action, Examiner states:

10 Applicant's arguments, see remarks page 1, filed 7/13/2005, with respect to 112 rejections have been fully considered and are persuasive. The 35 U.S.C. 112 rejection of claims 9-21, 21-24 and 38 have been withdrawn.

15 Applicant's arguments with respect to claims 1, 2, 7, 25, 26 and 29 have been considered but are moot in view of the new ground(s) of rejection. Additionally, the applicant's arguments were valid, but not effective due (sic) the fact that the differences between the instant invention and the prior art were not brought about in the claims. Vanes from turbo machines are capable of performing the function of a stay vane in a hydraulic turbine.

20 Due to the discovery of new art, examiner regretfully withdraws the allowance of claims 8, 9, 11, 32, 33, 35 and 37.

Under "Claim Rejections - 35 U.S.C. §102" of the office action, Examiner quotes 35 U.S.C. §102(b) and states:

25 Claims 1, 2, 7-9, 11, 25, 26, 29, 32-33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Horvath et al. (U. S. patent no. 6,045,325).

Horvath et al. discloses a stay vane (figure 4) for use with a turbine configuration having components, comprising:

30 a first structure (50), incorporating a leading edge (46) and a trailing edge (48) with respect to a fluid inlet to the turbine configuration wherein the first structure supports said turbine configuration at least in part; and

35 a second structure (72) affixed to the trailing edge of said first structure, wherein the second structure improves hydraulic performance of said turbine configuration by complementing at least one component of said turbine configuration.

Regarding claim 2, Horvath et al. discloses a stay vane with at least one connector (col. 4, lines 1-4) for affixing said second structure to the trailing edge of said first structure.

40 Regarding claim 7, Horvath et al. discloses a stay vane in which the second structure is affixed to the trailing edge of said first structure by mechanical bonding (col. 4, lines 1-4).

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Regarding claim 8, Horvath et al. discloses a stay vane with a complemented component that is a wicket gate (62).

Regarding claim 9, Horvath et al. discloses a stay vane with a second structure that touches the wicket gate (sic, "and") eliminates the gap (figure 4).

Regarding claim 25, Horvath et al. discloses all of the claimed limitations as discussed in claim 1 above.

Regarding claim 26, Horvath et al. discloses all of the claimed limitations as discussed in claim 2 above.

Regarding claim 29, Horvath et al. discloses all of the claimed limitations as discussed in claim 7 above.

Regarding claim 32, Horvath et al. discloses all of the claimed limitations as discussed in claim 8 above.

Regarding claim 33, Horvath et al. discloses all of the claimed limitations as discussed in claim 9 above.

Regarding claim 35, Horvath et al. discloses all of the claimed limitations as discussed in claim 11 above.

Applicants have amended Claim 1 on which Claims 2-12 depend to address Examiner's concerns. The Horvath et al. patent describes a seal and a method for using same. Claim 1 has been amended to eliminate reading on a seal for use with "vaness" of a turbo machine. In addition, Claims 2 and 7-12 have been amended to use language that is compatible with currently amended Claim 1.

Further, Applicants have amended Claim 25 on which Claims 26-36 depend to address Examiner's concerns. The Horvath et al. patent describes a seal and a method for using same. In a manner similar to Claim 1, Claim 25 has been amended to eliminate reading on a seal for use with "vaness" of a turbo machine. In addition, Claims 30, 32 and 33 have been amended to use language that is compatible with currently amended Claim 25.

Under "Claim Rejections - 35 U.S.C. §103" of the office action, Examiner quotes 35 U.S.C. §103(a) and states:

Claims 13-14, 19-21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al. (U. S. patent 6,254,339) in view of Horvath et al.

Fisher et al. discloses a wicket gate (28), a stay vane (30), a turbine runner (24), but does not disclose the second structure affixed to the trailing edge of the first structure.

However, Horvath et al. teaches all of the claimed limitations as discussed in claim 1 above including the second structure affixed to the trailing edge of the first structure of (sic) the purpose of preventing flow through the gap between the stay vane and wicket gate (col. 2, lines 12-16).

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Regarding claim 14, Horvath et al. teaches a stay vane with at least one connector (col. 4, lines 1-4) for affixing said second structure to the trailing edge of said first structure.

Regarding claim 19, Horvath et al. teaches a stay vane in which the second structure is affixed to the trailing edge of said first structure by mechanical bonding (col. 4, lines 1-4).

Regarding claim 20, Horvath et al. teaches a stay vane with a complemented component that is a wicket gate (62).

Regarding claim 21, Horvath et al. teaches a stay vane with a second structure that touches the wicket gate eliminates (sic) the gap between the second structure and the wicket gate (figure 4).

Regarding claim 23, Horvath et al. teaches a stay vane with a second structure made of durable elastic material (col. 4, line 10).

Since Fisher et al. and Horvath et al. both involve improving performance with wicket gates and stay vanes, Horvath would have been in the pertinent prior art of Fisher et al. It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the second structure of Horvath et al. on the stay vane of Fisher et al. in order to prevent flow through the gap between the stay vane and wicket gate (col. 2, lines 12-16).

Regarding claim 37, the modified apparatus of Fisher et al. discloses all of the claimed limitations of claim 21 above.

Applicants respectfully disagree with Examiner's characterization of obviousness by comparing the Horvath et al. invention to the Fisher et al. invention. Fisher et al. and Hovath et al. do not both improve performance with wicket gates and stay vanes as discussed further below. Although Fisher et al. describes a hydro-turbine such as a Kaplan turbine with which Applicants' invention may also be used, the gap being addressed is between the turbine blades and hub, not between stay vanes and wicket gates that determine the amount of water that reach the turbine blades. Thus, it would not be obvious to one of ordinary skill in the art at the time the invention was made to look at closing the gap at the stay vane wicket gate interface by looking at Fisher et al. since no mention is made of the gap between stay vanes and wicket gates in the Fisher et al. patent. Further, the Horvath et al. invention describes a turbine engine compressor to *compress* air prior to entry into an engine for burning. The Fisher et al. patent is for a hydro-turbine that handles a relatively *uncompressible* liquid, such as water. One would not expect to compare the functions of these two disparately used turbines, thus there is no motivation to do so as required by both MPEP and case law to establish a *prima facie* case of obviousness. In the Horvath et al. patent, the gap was closed between the strut and flap

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airfoils to preclude turbulence and avoid premature failure of the downstream turbine blades. In the Fisher et al. patent, the gap was closed (via a seal in the preferred embodiment) between the turbine blades and their enclosing hub only. This was accomplished to improve turbine performance parameters such as cavitation, efficiency, flow disturbance, and fish survivability. Since the Fisher et al. patent issued after the Horvath et al. patent, it must not have been obvious to Fisher et al. to use the "seal" of Horvath et al. on stay vanes of Kaplan turbines to accomplish the very purpose which Fisher et al. claims for the Fisher et al. blade to hub seal. Thus, Applicants' invention must not have been obvious to one of ordinary skill in the art at the time the invention was made since Fisher et al. were attempting to address one of the objectives of Applicants (fish survivability) at the time the Horvath et al. patent issued and did not then or since address the issue by reducing the gap between stay vane and wicket gate as Applicants have.

To improve clarity, Applicants have amended Claim 13 (upon which Claims 14-23 depend) and Claim 37 herewith and by so doing have made Claim 20 redundant, necessitating the need to cancel Claim 20 and amend Claim 21 to depend directly from Claim 13.

Under "Allowable Subject Matter" of the office action, Examiner states:

Claims 42-53 are allowed.

Claims 3-6, 10-12, 15-18, 22-24, 27-28 and 30-31, 34, 36 and 38-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants have amended independent Claims 1 (upon which Claims 3-6, and 10-12 depend), 13 (upon which Claims 15-18, and 22-24 depend), 25 (upon which Claims 30-31, 34, and 36 depend), and Claim 37 (upon which Claims 38-41 depend) to put the independent claims in order for allowance, thus Claims 3-6, 10-12, 15-18, 22-24, 27-28 and 30-31, 34, 36 and 38-41 will not be amended in this response.

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No new matter has been entered via this amendment. In view of the foregoing, it is respectfully requested that the subject application be passed to issue as amended hereby with currently amended Claims 1, 2, 7-13, 21, 25, 30, 32, 33 and 37, previously presented (amended) Claims 38 and 45 and original Claims 3-6, 8, 14-19, 22-24, 26-29, 31, 34-36, 39-44
5 and 46-53.

Respectfully Submitted,

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